

**7 MARCH 1994**



**Weather**

**WEATHER MODIFICATION**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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OPR: HQ AWS/DOO (SMSgt H. E. Newman)

Certified by: HQ USAF/XOW  
(Brig Gen John J. Kelly, Jr)

Supersedes AFR 105-7, 22 Jun 92 and AFI  
15-107, 30 Nov 93.

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This instruction implements Air Force Policy Directive 15-1, *Atmospheric and Space Environmental Support*. It provides guidance and procedures for reporting weather modification activities. It applies to all US Air Force organizations and members engaged in, or actively planning to engage in weather modification activities, whether carried out by military personnel, agents, or independent contractors.

**SUMMARY OF REVISIONS**

This revision reorganizes the text and incorporates the requirements, information, and procedures formerly published in AFR 105-7. It aligns the instruction with AFR 15-1.

**1. References and Acronyms. See Attachment 1.**

**2. Statutory Authority.** Statutory authority for this instruction is derived from Public Law 92-205, *An Act to Provide for the Reporting of Weather Modification Activities to the Federal Government*; Public Law 94-490, *An Act to Authorize and Direct the Secretary of Commerce to Develop a National Policy on Weather Modification*; and Section 908.8, Part 908 of Title 15, Code of Federal Regulations.

**3. Definition.** Weather modification is defined as any activity performed with the intention of producing artificial changes in the composition, behavior, or dynamics of the atmosphere. This includes, but is not limited to, seeding or dispersing of any substance into clouds or fog to alter their characteristics, enhance rainfall or inhibit the development of hail or lightning, or using heat sources to evaporate fog.

3.1. For further information on technical aspects of weather modification, contact Geophysics Directorate, Phillips Laboratory, Hanscom AFB MA (DSN 478-2975).

**4. Responsibilities.** Wing or installation commanders are responsible for compliance with this instruction.

**5. Required Actions.** Units engaged in weather modification activities or intending to engage in weather modification activities will:

5.1. Coordinate with the servicing legal office to ensure the legality of weather modification activities.

5.2. Coordinate with the local environmental management office to determine the need for initiating an environmental impact analysis.

5.3. Coordinate with the servicing public affairs office to ensure appropriate responses to potential public and media queries are prepared and approved prior to any weather modification activities.

5.4. Obtain approval from the proper agency at the federal or local level (state, county, or municipal), or both if required, prior to engaging in any weather modification activity.

5.4.1. See attachments 2 through 4 for examples of, and instructions for, the forms used to report weather modification activities.

5.5. Report the intent to engage in weather modification activities and report the actual weather modification activities to the National Oceanic and Atmospheric Administration, Office of Oceanic and Atmospheric Research R/PDC, 1335 East-West Highway, Silver Spring MD 20910. For information on reporting rules or to request forms, call Commercial (301) 713-2465.

5.6. Send information copies of all reports to:

5.6.1. Directorate of Weather, Deputy Chief of Staff, Plans and Operations, Headquarters USAF (HQ USAF/XOW), 1490 Air Force Pentagon, Washington DC 20330-1490.

5.6.2. Geophysics Directorate, Phillips Laboratory (PL/GPA), Hanscom AFB MA 01731-5000.

5.6.3. Operations Division, United States Air Force Environmental Technical Applications Center (USAFETAC/DO), 859 Buchanan St, Scott AFB, IL 62225-5116.

5.7. Send information copies of all news releases to HQ USAF/XOW and the Secretary of the Air Force, Office of Public Affairs (SAF/PA), 1690 Air Force Pentagon, Washington DC 20330-1690.

BUSTER C. GLOSSON, Lt General, USAF  
DCS/Plans and Operations

## **Attachment 1**

### **GLOSSARY OF REFERENCES AND ACRONYMS**

#### ***References***

Public Law 92-205, 92nd Congress, *An Act to Provide for the Reporting of Weather Modification Activities the Federal Government*, 18 December 1971

Public Law 94-490, 94th Congress, *An Act to Authorize and Direct the Secretary of Commerce to Develop a National Policy on Weather Modification*, 13 October 1976

Code of Federal Regulations, Part 908 of Title 15, Section 908.8

Air Force Policy Directive 15-1, *Atmospheric and Space Environmental Support*

#### ***Abbreviations and Acronyms***

**AF**—Air Force

**AWS**—Air Weather Service

**HQ USAF**—Headquarters United States Air Force

**NOAA**—National Oceanic and Atmospheric Administration

**PL**—Phillips Laboratory

**SAF**—Secretary of the Air Force

**USAFETAC**—United States Environmental Technical Applications Center

## Attachment 2

## SAMPLE NOAA FORM 17-4.

Complete in accordance with instructions on reverse and forward copy: <b>TO:</b> National Oceanic and Atmospheric Administration Office of Oceanic and Atmospheric Research R/POC 1335 East-West Highway Silver Spring, MD 20910				Form Approved: OMB No. 0648-0025 Expires 8/31/95 NOAA FORM 17-4 U. S. DEPARTMENT OF COMMERCE (4-81) NAT'L OCEANIC AND ATMOSPHERIC ADM			
PROJECT OR ACTIVITY DESIGNATION, IF ANY				<b>INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES</b> (P.L. 205, 92ND. CONGRESS)			
PURPOSE OF PROJECT OR ACTIVITY				2. DATES OF PROJECT a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES			
3. SPONSOR NAME				4. (b) OPERATOR NAME			
AFFILIATION			PHONE NUMBER	AFFILIATION			PHONE NUMBER
STREET ADDRESS				STREET ADDRESS			
CITY		STATE	ZIP CODE	CITY		STATE	ZIP CODE
5. TARGET AND CONTROL AREAS (See Instructions)							
TARGET AREA				CONTROL AREA			
LOCATION			SIZE OF AREA SQ. MI.	LOCATION			SIZE OF AREA SQ. MI.
DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED, ETC. (See Instructions)							
S A M P L E							
LOG BOOKS: Enter name, affiliation, address, and telephone number of responsible individual from whom log books or other records may be obtained.							
NAME				THIS REPORT IS REQUIRED BY PUBLIC LAW 92-205; 85 STAT 735; 15 U.S.C. 330b. KNOWING AND WILLFUL VIOLATION OF ANY RULE ADOPTED UNDER THE AUTHORITY OF SECTION 2 OF PUBLIC LAW 92-205 SHALL SUBJECT THE PERSON VIOLATING SUCH RULE TO A FINE OF NOT MORE THAN \$10,000, UPON CONVICTION THEREOF.			
AFFILIATION			PHONE				
STREET ADDRESS							
CITY		STATE	ZIP CODE				
6. SAFETY AND ENVIRONMENT <input type="checkbox"/> YES <input type="checkbox"/> NO Has an Environmental Impact Statement, Federal or State been filed? If yes, please furnish a copy as applicable. <input type="checkbox"/> YES <input type="checkbox"/> NO Have provisions been made to acquire the latest forecasts, advisories, warnings, etc. of the National Weather Service, Forest Service, or others when issued prior to and during operations? If yes, please specify on a separate sheet. <input type="checkbox"/> YES <input type="checkbox"/> NO Have any safety procedures (operational constraints, provisions for suspension of operations, monitoring methods, etc.) and any environmental guidelines (related to the possible effects of the operations) been included in the operational plans? If yes, please furnish copies or a description of the specific procedures and guidelines.							
7. OPTIONAL REMARKS (See Instructions. Use Separate Sheet.)							
NAME				CERTIFICATION: I certify that the above statements are true, complete and correct to the best of my knowledge and belief.			
AFFILIATION				SIGNATURE			
STREET ADDRESS				OFFICIAL TITLE			
CITY		STATE	ZIP CODE	DATE		PHONE NUMBER	

Public reporting burden for this data collection is estimated to average 30 minutes per response, including the time for reviewing the form for completeness, filling the information, and completing any necessary correspondence with the applicant. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the NOAA/Office of Oceanic and Atmospheric Research (R/MB), 1335 East-West Highway, Silver Spring, MD, 20910; and to the Office of Management and Budget, Paperwork Reduction Project (0648-0025), Washington, DC, 20503.

#### INSTRUCTIONS FOR INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES

One completed copy of this form is to be received 10 days\* or more prior to actual modification activities. A NOAA file number will be assigned by the Administrator after receipt of the initial report for each project or activity.

A supplemental report in a letter form referring to the appropriate NOAA file number must be made to the Administrator if the "Initial Report" is found to contain any material inaccuracies, misstatements, and omissions, or if there are changes in plans for the project or activity.

\*For exceptions, see Sections 908.4(b) and (c), Part 908 of Title 15, Code of Federal Regulations.

- Item 1. Enter designation, if any, used by operator for the project or activity.
- Item 2. Enter: (a) Date first actual weather modification activity is to be undertaken;  
(b) Date on which final weather modification activity is expected to occur.
- Item 3. Enter the purpose of the project or activity: e.g., rainfall increase, hail suppression, cold fog dispersal, etc.
- Item 4. Enter: (a) Name, phone number, affiliation, and address of the primary person for whom the project is to be performed (sponsor).  
(b) Name, phone number, affiliation, and address of the person primarily responsible for carrying out the project (operator).
- Item 5. A map should be attached showing size and location of target area, control area, coded number and location of each item of ground-based weather modification apparatus and coded number and location of key raingages, radars, or other precipitation measuring devices. Also show location of airport for airborne operations.
- Item 6. Describe the weather modification apparatus, modification agents, and the techniques to be used. This would include type of ground or airborne apparatus to be used, type of modification material to be dispensed, rate of dispensing material in grams per hour or other appropriate units, type of precipitation gages to be used in target and control areas, and any other pertinent information such as type of radars, type of aircraft to be used, techniques to be employed, (e.g., cloud base seeding at 10,000 feet msl).
- Item 7. List name, phone number, affiliation, and address of the responsible individual from whom log books or other records may be obtained.
- Item 8. Provide applicable answers to questions as indicated.
- Item 9. This item is to permit the reporting person to include any information not covered by items 1 through 8 but which he feels is significant or of interest. It is also to be used to include any information not covered elsewhere that the Administrator may request.

## Attachment 3

## SAMPLE NOAA FORM 17-4A.

NOAA FORM 17-4A (4-811)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				Form Approved OMB No. 0648-0025 Expires 8/31/95						
<b>INTERIM ACTIVITY REPORTS AND FINAL REPORT</b>										NOAA FILE NUMBER		
<p><i>This report is required by Public Law 92-205: 85 Stat. 735, 15 U.S.C. 330b. Knowing and willful violation of any rule adopted under the authority of Section 2 of Public Law 92-205 shall subject the person violating such rule to a fine of not more than \$10,000, upon conviction thereof.</i></p> <p>Complete in accordance with instructions on reverse and forward one copy to:          National Oceanic and Atmospheric Administration          Office of Oceanic and Atmospheric Research R/PDC          1335 East-West Highway          Silver Spring, MD 20910</p>										<input type="checkbox"/> INTERIM REPORT <input type="checkbox"/> FINAL REPORT		
REPORTING PERIOD										FROM _____ TO _____		
MONTH	(a) NUMBER OF MODIFICATION DAYS	(b) NUMBER OF MODIFICATION DAYS PER MAJOR PURPOSE				(c) HOURS OF APPARATUS OPERATION BY TYPE		(d) TYPE AND AMOUNT OF AGENT USED				
		INCREASE PRECIPITATION	ALLEVIATE		OTHER	AIRBORNE	GROUND	SILVER IODIDE	CARBON DIOXIDE	UREA	SODIUM CHLORIDE	OTHER
			HAIR	FOG								
JANUARY												
FEBRUARY												
MARCH												
APRIL												
MAY												
JUNE												
JULY												
AUGUST												
SEPTEMBER												
OCTOBER												
NOVEMBER												
DECEMBER												
TOTAL												
TOTALS FOR FINAL REPORT												
DATE ON WHICH FINAL WEATHER MODIFICATION ACTIVITY OCCURRED (For Final Report only.)												
CERTIFICATION: I certify that all statements in this report on this weather modification project are complete and correct to the best of my knowledge and are made in good faith.								NAME OF REPORTING PERSON				
AFFILIATION								SIGNATURE				
STREET ADDRESS								OFFICIAL TITLE				
CITY				STATE		ZIP CODE		DATE				

Public reporting burden for this data collection is estimated to average 30 minutes per response, including the time for reviewing the form for completeness, filling the information, and completing any necessary correspondence with the applicant. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the NOAA/Office of Oceanic and Atmospheric Research (R/MB), 1335 East-West Highway, Silver Spring, MD, 20910; and to the Office of Management and Budget, Paperwork Reduction Project (0648-0025), Washington, DC, 20503.

## **INSTRUCTIONS FOR INTERIM AND FINAL REPORTS**

Any person engaged in any weather modification project or activity in the United States on January 1 in any year shall submit one copy of this form setting forth as of such date the information required with respect to each such continuing project or activity not previously furnished in a prior interim report. The box indicating "Interim Report" should be checked. The January 1 date shall not apply if other arrangements have previously been made with the written approval of the Administrator of NOAA. The report shall be received by NOAA not later than 45 days following the end of the reported period.

Upon completion of a project or activity one copy of this report shall be submitted and the box checked indicating "Final Report." The final report shall be received by NOAA not later than 45 days after the completion of the project or activity.

The NOAA File Number should be filled in for any project for which the Administrator has assigned a file number.

A supplemental report in letter form referring to the appropriate NOAA file number must be made to the Administrator if the "Interim" or "Final" reports are found to contain any material inaccuracies, misstatements, and omissions.

### **INTERIM REPORT**

The information in items (a) through (d) on the report form should be provided as prescribed below for the months to which the report pertains. If no data are applicable for any given item in any month, enter zero.

- Item (a). Enter number of days on which actual weather modification activities took place.
- Item (b). Enter in the appropriate column number of days on which modification activities were conducted, segregated by each of the major purposes of the activities. Normally, the total of entries in (b) would equal total in (a).
- Item (c). Enter in the appropriate column total number of hours of operation of each type of weather modification apparatus, (i.e., net hours of agent release). If the form does not contain sufficient space, report additional types on a separate sheet.
- Item (d). Enter in the appropriate column total amount of agent used, by type. If the form does not contain sufficient space, report additional types on a separate sheet.

The totals for these items shall be provided for the period covered by the interim report.

### **FINAL REPORT**

The final report shall contain the information required for interim reports, to the extent not previously reported. In addition, the items designated as "Totals for Final Report" should be reported. This information should pertain to the entire project or activity period, rather than only the period since the last interim report. At the space at the end of the form, enter the date on which final weather modification activity occurred.

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## INSTRUCTIONS FOR COMPLETING DAILY LOG FORM

### DAILY LOG OF ACTIVITIES

This is a suggested form to be used in recording the information required to be kept by Section 908.8, Part 908 of Title 15, Code of Federal Regulations. Other logs may be used, providing they contain the information required. A tabular form is provided on which to report a daily log of activities for each unit of weather modification apparatus. The form is suitable for recording operation of individual items of ground or airborne apparatus. In the spaces provided above the columns, write the designation of the weather modification apparatus, coded to refer to the description required by Sections 908.8 (b) (1) and 908.8 (c), Part 908 of Title 15, Code of Federal Regulations, the month and year of daily record, the name of the operator, and the NOAA file number. These or other logs containing the required information shall be retained for 5 years; they are not to be sent to NOAA.

Explanation of columns follows:

- |                             |  |
|-----------------------------|--|
| Col. (1)                    | State date of the weather modification activity.   |
| Col. (2)                    | Give each aircraft position or location of each item of weather modification apparatus during each modification mission. Maps may be used.   |
| Col. (3) and (4)            | State local time when modification activity began and ended. Use 24-hour clock time (e.g., 0100 signifies 1:00 A.M. and 2300 signifies 11:00 P.M.). For intermittent operations, the start and end of the total sequence are acceptable. |
| Col. (5)                    | Give duration of operation of each unit of weather modification apparatus, in hours and minutes. (Col. 5 = Col. 4 - Col. 3).   |
| Col. (6)                    | Describe type of modification agent used.  |
| Col. (7)                    | Give rate of dispersal of agent during the period of actual operation of weather modification apparatus, by hour or other appropriate time period.   |
| Col. (8)                    | Give total amount of modification agent used. If more than one agent was used, report total for each type separately.  |
| Col. (9), (10), (11) & (12) | Check once for each day on which modification activities were conducted, segregated by each of the major purposes of the activities.   |

On the daily log sheet for the last day of each month, give monthly totals, for Columns (5), (8), (9), (10), (11), and (12).